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National Park Service  
Cultural Landscapes Inventory  
2004



Ainahou Ranch House and Gardens  
Hawaii Volcanoes National Park

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## Executive Summary

### General Introduction to the CLI

The Cultural Landscapes Inventory (CLI) is a comprehensive inventory of all historically significant landscapes within the National Park System. This evaluated inventory identifies and documents each landscape's location, physical development, significance, National Register of Historic Places eligibility, condition, as well as other valuable information for park management. Inventoried landscapes are listed on, or eligible for, the National Register of Historic Places, or otherwise treated as cultural resources. To automate the inventory, the Cultural Landscapes Automated Inventory Management System (CLAIMS) database was created in 1996. CLAIMS provides an analytical tool for querying information associated with the CLI.

The CLI, like the List of Classified Structures (LCS), assists the National Park Service (NPS) in its efforts to fulfill the identification and management requirements associated with Section 110(a) of the National Historic Preservation Act, NPS Management Policies (2001), and Director's Order #28: Cultural Resource Management (1998). Since launching the CLI nationwide, the NPS, in response to the Government Performance and Results Act (GPRA), is required to report on an annual performance plan that is tied to 6-year strategic plan. The NPS strategic plan has two goals related to cultural landscapes: condition (1a7) and progress on the CLI (1b2b). Because the CLI is the baseline of cultural landscapes in the National Park System, it serves as the vehicle for tracking these goals.

For these reasons, the Park Cultural Landscapes Program considers the completion of the CLI to be a servicewide priority. The information in the CLI is useful at all levels of the park service. At the national and regional levels it is used to inform planning efforts and budget decisions. At the park level, the CLI assists managers to plan, program, and prioritize funds. It is a record of cultural landscape treatment and management decisions and the physical narrative may be used to enhance interpretation programs.

Implementation of the CLI is coordinated on the Region/Support Office level. Each Region/Support Office creates a priority list for CLI work based on park planning needs, proposed development projects, lack of landscape documentation (which adversely affects the preservation or management of the resource), baseline information needs and Region/Support office priorities. This list is updated annually to respond to changing needs and priorities. Completed CLI records are uploaded at the end of the fiscal year to the National Center for Cultural Resources, Park Cultural Landscapes Program in Washington, DC. Only data officially entered into the National Center's CLI database is considered "certified data" for GPRA reporting.

The CLI is completed in a multi-level process with each level corresponding to a specific degree of effort and detail. From Level 0: Park Reconnaissance Survey through Level II: Landscape Analysis and Evaluation, additional information is collected, prior information is refined, and decisions are made regarding if and how to proceed. The relationship between Level 0, I, and II is direct and the CLI for a landscape or component landscape inventory unit is not considered finished until Level II is complete.

A number of steps are involved in completing a Level II inventory record. The process begins when the CLI team meets with park management and staff to clarify the purpose of the CLI and is followed by historical research, documentation, and fieldwork. Information is derived from two efforts: secondary sources that are usually available in the park's or regions' files, libraries, and archives and on-site landscape investigation(s). This information is entered into CLI database as text or graphics. A park report is generated from the database and becomes the vehicle for consultation with the park and the

## SHPO/TPO.

Level III: Feature Inventory and Assessment is a distinct inventory level in the CLI and is optional. This level provides an opportunity to inventory and evaluate important landscape features identified at Level II as contributing to the significance of a landscape or component landscape, not listed on the LCS. This level allows for an individual landscape feature to be assessed and the costs associated with treatment recorded.

The ultimate goal of the Park Cultural Landscapes Program is a complete inventory of landscapes, component landscapes, and where appropriate, associated landscape features in the National Park System. The end result, when combined with the LCS, will be an inventory of all physical aspects of any given property.

## Relationship between the CLI and a CLR

While there are some similarities, the CLI Level II is not the same as a Cultural Landscape Report (CLR). Using secondary sources, the CLI Level II provides information to establish historic significance by determining whether there are sufficient extant features to convey the property's historic appearance and function. The CLI includes the preliminary identification and analysis to define contributing features, but does not provide the more definitive detail contained within a CLR, which involves more in-depth research, using primary rather than secondary source material.

The CLR is a treatment document and presents recommendations on how to preserve, restore, or rehabilitate the significant landscape and its contributing features based on historical documentation, analysis of existing conditions, and the Secretary of the Interior's standards and guidelines as they apply to the treatment of historic landscapes. The CLI, on the other hand, records impacts to the landscape and condition (good, fair, poor) in consultation with park management. Stabilization costs associated with mitigating impacts may be recorded in the CLI and therefore the CLI may advise on simple and appropriate stabilization measures associated with these costs if that information is not provided elsewhere.

When the park decides to manage and treat an identified cultural landscape, a CLR may be necessary to work through the treatment options and set priorities. A historical landscape architect can assist the park in deciding the appropriate scope of work and an approach for accomplishing the CLR. When minor actions are necessary, a CLI Level II park report may provide sufficient documentation to support the Section 106 compliance process.

## Park Information

|                                |                                |
|--------------------------------|--------------------------------|
| <b>Park Name:</b>              | Hawaii Volcanoes National Park |
| <b>Administrative Unit:</b>    | Hawaii Volcanoes National Park |
| <b>Park Organization Code:</b> | 8300                           |
| <b>Park Alpha Code:</b>        | HAVO                           |

## Property Level And CLI Number

|  |                                 |
|--|---------------------------------|
| <b>Property Level:</b>                 | Component Landscape             |
| <b>Name:</b>                           | Ainahou Ranch House and Gardens |
| <b>CLI Identification Number:</b>      | 975108                          |
| <b>Parent Landscape CLI ID Number:</b> | 975039                          |

## Inventory Summary

|                         |          |
|-------------------------|----------|
| <b>Inventory Level:</b> | Level II |
|-------------------------|----------|

### Completion Status:

#### Level 0

|                                |           |
|--------------------------------|-----------|
| Date Data Collected - Level 0: | 8/15/1999 |
| Level 0 Recorder:              | P. Nelson |
| Date Level 0 Entered:          | 8/15/1999 |
| Level 0 Data Entry Recorder:   | P. Nelson |
| Level 0 Site Visit:            | Yes       |

#### Level I

|                              |           |
|------------------------------|-----------|
| Date Level I Data Collected: | 8/18/1999 |
| Level I Data Collection      | P. Nelson |
| Date Level I Entered:        | 8/18/1999 |
| Level I Data Entry Recorder: | L. Tamimi |
| Level I Site Visit:          | Yes       |

#### Level II

|                               |                              |
|-------------------------------|------------------------------|
| Date Level II Data Collected: | 7/28/2003                    |
| Level II Data Collection      | L. Tamimi, C. Rygh           |
| Date Level II Entered:        | 1/8/2004                     |
| Level II Data Entry Recorder: | L. Tamimi and Christian Rygh |
| Level II Site Visit:          | Yes                          |
| Date of Concurrence           | 8/24/2004                    |

## Component Landscape Description

The 'Ainahou Ranch House and Gardens is located within Hawai'i Volcanoes National Park, approximately four miles south and down slope from Kilauea Caldera. The site was listed on the National Register of Historic Places at the state level of significance in 1995. The CLI provides an inventory of those landscape features that contribute to the significance of the site. The 13.3-acre historic site sits within a native mesic (moist but not extremely wet) forest at an elevation of 3000 feet. Within this forest, gardens that surround a unique craftsman house create an exotic setting which reflects the site's development by renowned horticulturalist, Herbert C. Shipman from 1941 to 1971. During these years, Shipman created an informal historic vernacular landscape that showcased his vast horticultural collection, which included orchids, orchards, a tree farm, and rare plants from around the globe. These plantings were all supported by an on-site rare plant nursery and an ingenious and unique rainwater catchment system.

Shipman's efforts were intended to develop not a botanic garden in a traditional sense, with specific areas dedicated to species, ecosystems, or parts of the globe, but an aesthetic horticultural showcase to display his collections and beautify the grounds of his unique home. The gardens were informally planted throughout the grounds, making use of the sloping terrain to create views to the shoreline, as well as smaller topographic lava features that were used as planters or as backdrops for orchids and other species. The palette consisted of a multitude of exotic species laid out in an informal, non-linear pattern, which in several areas incorporated or even accentuated the existing natural patterns of native trees and rock outcrops. While Shipman utilized many exotics in discrete arrangements throughout his gardens, the layout does not adhere to any formally designed plan (that is known) and does not follow the any thematic organization that might categorize the developments as botanical gardens or as a formally designed landscape. As a result, the 'Ainahou Ranch House and Gardens is a historic vernacular landscape.

The period of significance of 1941 to 1971, established in the National Register of Historic Places documentation, begins when Shipman first constructed his house as a safe haven from possible Japanese invasion during WWII. During and after the war, the ranch house was also used as a base of operations for 'Ainahou Ranch, which supplied beef to military and domestic outlets. The ensuing years saw more elaborate gardens surrounding the ranch house, and the site was used as a Nene (endangered Hawaiian goose) sanctuary (Shipman is further credited with saving the Nene from extinction). The period ends in 1971 when Shipman submitted his asking price for his improvements to the property, and terminated his lease with B.P. Bishop Estate, thereby enabling the National Park Service to acquire it from the owner. As a result of Shipman's tenure on the site, the 'Ainahou Ranch House and Gardens historic site is significant under National Register Criteria B and C.

While the current variety of plant species found at the 'Ainahou Ranch House and Gardens is significantly less diverse than during the period of significance (Shipman removed many plants from 1973 to 1975, and the National Park Service has had to eradicate some of the invasive contributing species), the overall character of the site as a manicured showcase of exotics within a native mesic forest remains. This is due in part to efforts by both the National Park Service and the Friends of 'Ainahou, a volunteer organization dedicated to the upkeep of the property. As a result, the following landscape characteristics contribute to the significance of the National Register of Historic Places site: natural systems and features, topography, buildings and structures, cluster arrangement, spatial organization, vegetation, circulation, and land use. However, due to the removal of fences and the rapid encroachment of primarily invasive forest species, the small scale features and views and vistas landscape characteristics no longer contribute to the significance of the site. Overall, the site is in fair condition. As established in the National Register of

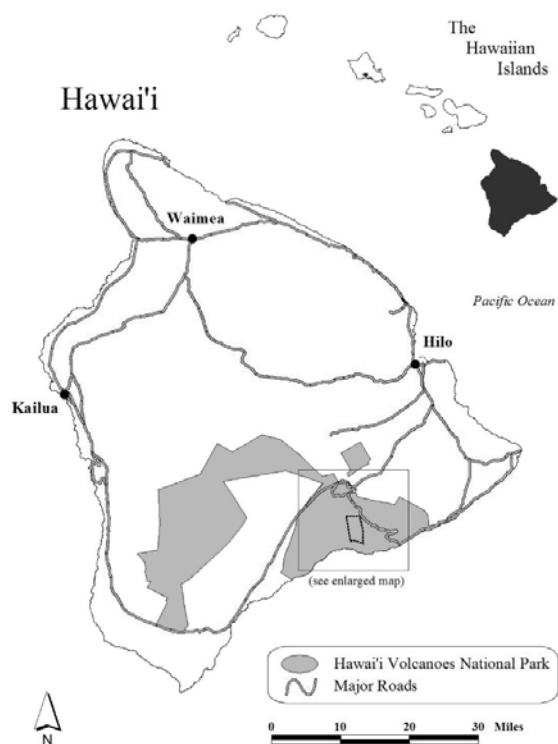
Historic Places nomination, the 'Ainahou Ranch House and Gardens retains integrity according to the seven aspects: location, design, setting, materials, workmanship, feeling, and association.



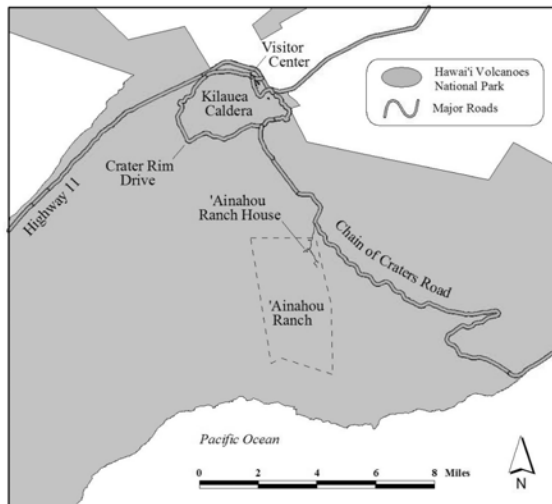
## **Cultural Landscapes Inventory Hierarchy Description**

The 'Ainahou Ranch House and Gardens is the only component landscape of the larger 'Ainahou Ranch parent landscape. Its character as a highly developed house and garden is distinct from the surrounding vernacular ranch lands that make up the majority of the Herbert C. Shipman property. As a result, the component landscape warrants specific documentation separate from the larger ranch.

## Location Map



*Location Map # 1: Location of Hawai'i Island and Hawai'i Volcanoes National Park (PWR, HAVO, CLI files, 2003).*



**'Ainahou Ranch House Location**

*Location Map # 2: Locations of 'Ainahou Ranch and 'Ainahou Ranch House and Gardens within Hawai'i Volcanoes National Park (PWR, HAVO, CLI files, 2003).*

## Boundary Description

The landscape boundary surrounds the 'Ainahou Ranch House and includes the ranch house gardens, the plant nursery area to the west, and an irregular-shaped extension to the northeast that includes a grove of cork oaks planted by Shipman. In general, the boundary was delineated chiefly to include contributing (planted) vegetation dating from the period of significance. The 13.3 acre CLI boundary encompasses a great deal more than the National Register of Historic Places nomination, which describes the site as less than one acre and gives no verbal or map description of the site's boundaries. Contributing vegetation remains as a legacy of Shipman's enthusiasm for horticulture and is thus a particularly critical element in the cultural landscape. The boundary does not include outbuildings that are only associated with ranching and/or are far removed from the ranch house. These structures as well as other features not directly related or adjacent to the ranch house and surrounding gardens will be addressed in the parent landscape inventory. The cultural landscape boundary falls within tract number 01-114, located in Hawai'i Volcanoes National Park (see land ownership map and site map). The UTM coordinates delineating the cultural landscape boundary are listed in the boundary UTM section of part 4 of this document.

## Regional Context

### Physiographic Context

The 'Ainahou Ranch House and Gardens is precariously located on the slopes of the most active volcano in the world – Kilauea. Eruptions from this shield volcano are ordinarily slow and gradual in comparison with the more explosive and sudden eruptions of pyroclastic volcanoes (e.g. Mount St. Helens), although infrequent explosive eruptions have historically occurred. Since the volcanic landscapes are so young, soil deposits are scant. The Hawaiian Islands are home to one of the highest concentrations of endemic and endangered species on the planet. The 'Ainahou Ranch area was originally a vibrant mesic forest, but ranching, feral animals, and invasive plants have severely diminished the species integrity of this most vulnerable of native Hawaiian ecosystems. The National Park Service (NPS) and other local agencies and non-profit groups are currently involved in removing invasive species and re-establishing rare, threatened, and endangered species in the region.

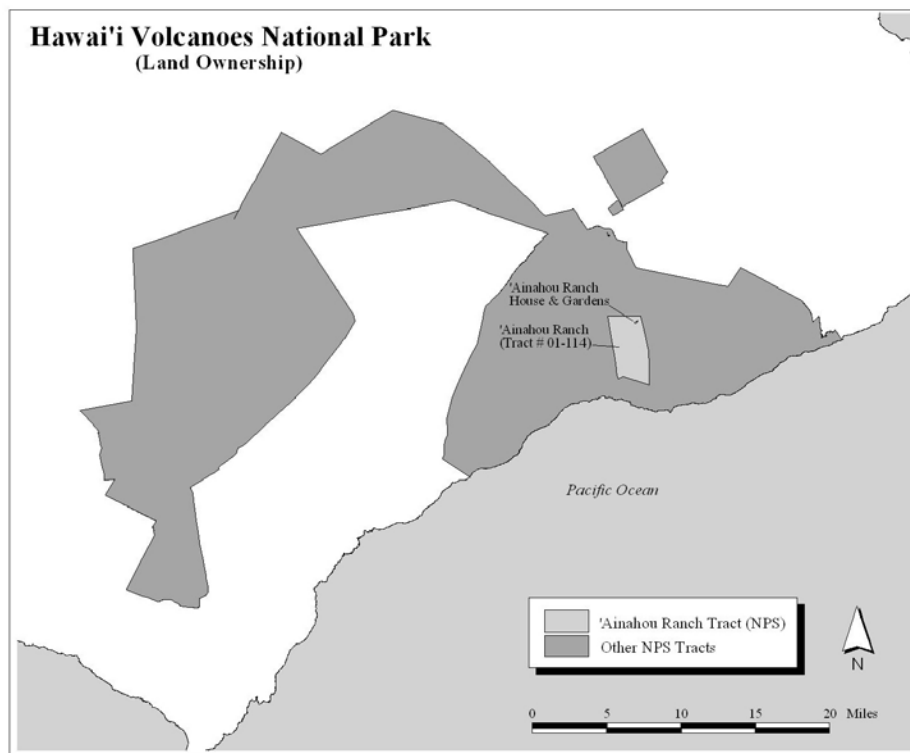
## Cultural Context

'Ainahou Ranch is situated within the Keauhou ahupua'a, which reaches from the heights of Mauna Loa to the ocean and encompasses Kilauea Caldera. Archaeological evidence and a rich oral history confirm that Hawaiians had been living in the Keauhou ahupua'a for several centuries prior to Western contact. The area near the component landscape is not believed to have been an area of dense settlement, but was probably frequented by Hawaiians traveling to and from the coast within this land division. Based on current information, the bridle path and dirt road through 'Ainahou Ranch appear to follow the course of the prehistoric Keauhou Trail – an important route for native Hawaiians exchanging resources between coastal and highland ecosystems. In the late nineteenth century, the route was developed into a bridal path (lower portion) and road (upper portion) from Keauhou Landing to the vicinity of Hawai'i Volcanoes National Park headquarters. This was the primary route used to bring tourists to Kilauea Volcano (Volcano House lodging) before 1894, at which time the route from Hilo to Volcano (now Highway 11) was improved to accommodate carriages (NPS unpublished manuscript, 1999). Before this development, pulu (downy silk from tree ferns used for mattress filling) and thousands of head of cattle (from other ranches in the region) were transported to port along the Keauhou Trail.

The Big Island (Hawai'i Island) is the birthplace and stronghold of Hawai'i's ranching industry and paniolo (cowboy) culture. The first cattle were brought by Captain George Vancouver in 1793 and 1794 as a gift to Kamehameha I who turned them loose and placed a kapu (taboo) on their slaughter until 1830. By this time, a dozen cattle had proliferated into a numerous and feral population, which was wreaking havoc on native ecosystems and seemed impossible to control. Thus, Kamehameha III sent an ambassador to Mexico to bring back some vaqueros (Mexican cowboys) to teach local people to ride horses, rope cattle, and tame wild cattle (Nolan, 2001). Between 1850 and 1900 many different breeds of cattle were imported throughout the Hawaiian Islands and large-scale ranching operations emerged, particularly on the Big Island. During the period of significance, the chief industries elsewhere in the state were pineapple and sugarcane (Juvik and Juvik, 1998), but in the immediate region, soil and climate were better suited for ranching. To this day, despite the growing population pressure and changing economic currents (e.g. tourism) in Hawai'i, the Ka'u district still contains several working ranches.

## Political Context

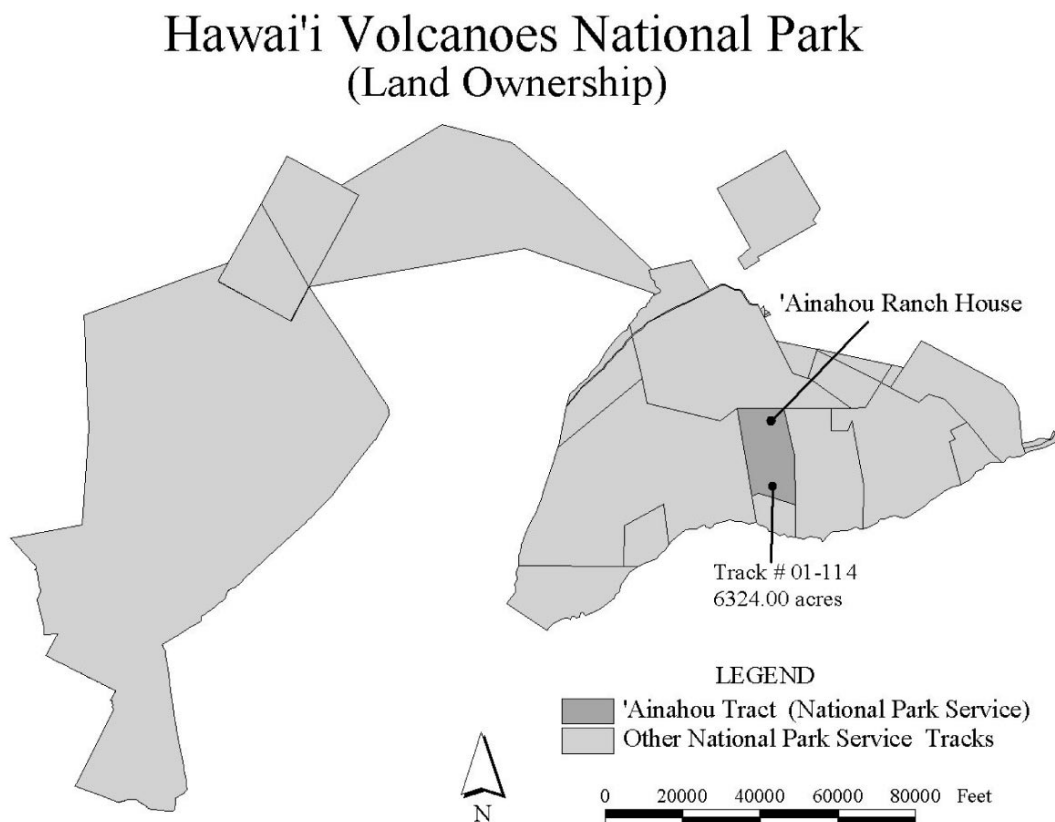
Prior to Western contact, land tenure in Hawai'i was based on a hierarchical structure of chiefs. The basic land units (ahupua'a) stretched from the mountains to the ocean, creating a radial pattern of (wedge-shaped) chiefdoms and ensuring that the commoners in each ahupua'a had access to the resources from each physiographic zone (e.g. coast, lowlands, highlands). The westernization and commercialization of Hawai'i eventually gave rise to the Great Mahele (1847-1850), by which King Kamehameha III established a private land tenure system in the Hawaiian Islands. The entire ahupua'a of Keauhou was awarded to Victoria Kamamalu, a granddaughter of Kamehameha I. Between 1866 and 1884, the ownership of Keauhou was successively inherited by members of the Kamehameha lineage upon the deaths of previous heirs until the death of Princess Bernice Pauahi, at which time her husband Charles Bishop established B.P. Bishop Estate to administer Keauhou and other properties in Princess Pauahi's inheritance (Jackson and Durst, 2001). Congress purchased the lower portion of Keauhou (all except a 6,324 acre parcel that would later be called 'Ainahou Ranch) from B.P. Bishop Estate and established Hawai'i National Park in 1916. Shipman leased the anomalous 'Ainahou parcel from 1937 until 1971, at which time the NPS was able to acquire it from B.P. Bishop Estate. Hawai'i Volcanoes National Park, as it is now called, is located in the Ka'u District of the County (and Island) of Hawai'i.



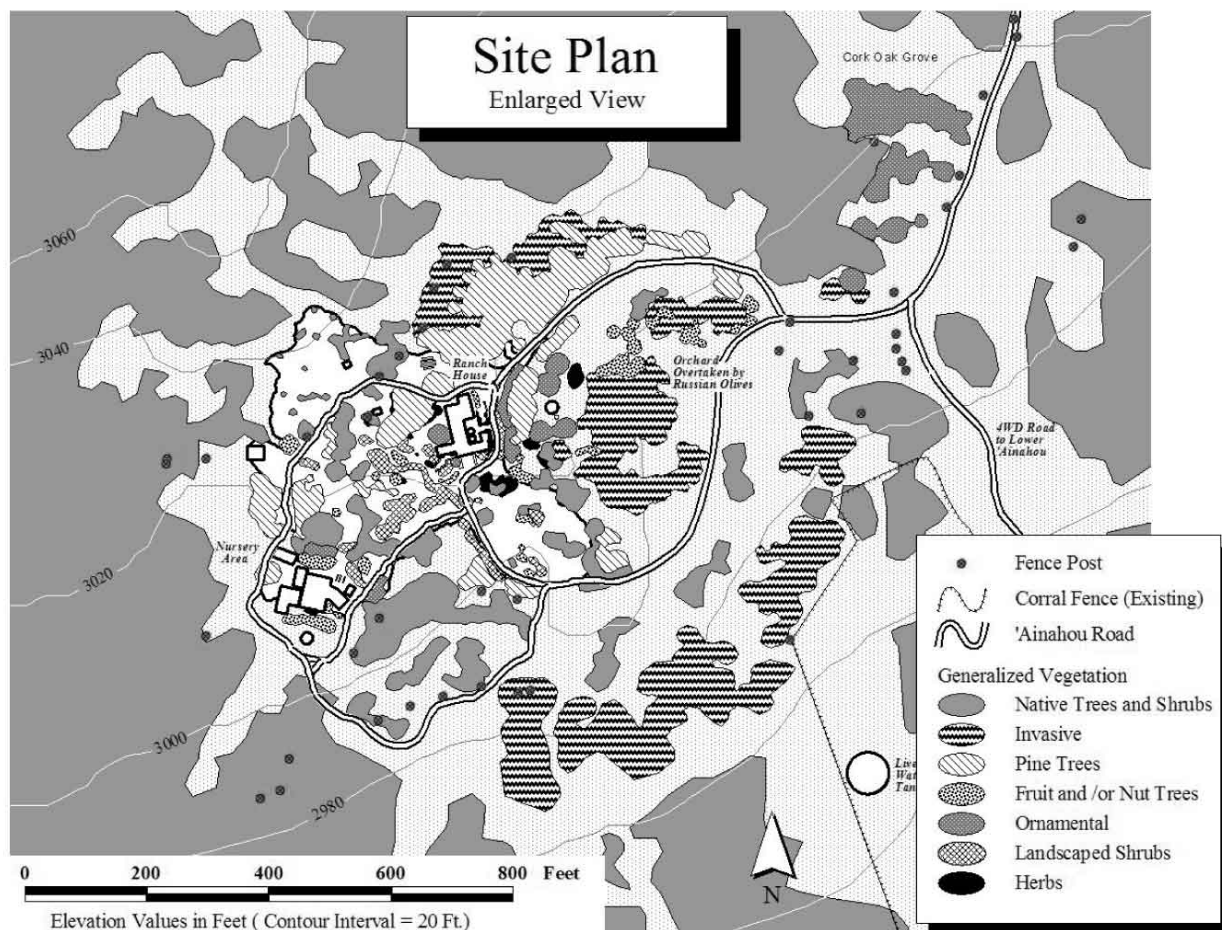
*Regional Context # 1: Map showing the 'Ainahou Ranch tract acquired by the NPS in 1971.*

## Site Plan

*Site Plan # 1: General overview (PWR, HAVO, CLI files, 2003). For full-size graphic see Appendix.*



*Site Plan # 2: Enlarged View of core area of the cultural landscape (PWR, HAVO, CLI files, 2003). For full-size graphic see Appendix.*





## Chronology

| Year           | Event          | Description   |
|----------------|----------------|---|
| 1848 AD        | Land Transfer  | The 'ili'aina of Keauhou (land division containing 'Ainahou Ranch lands) in Ka'u was awarded to Victoria Kamamalu during the Great Mahele.  |
| 1863 - 1921 AD | Land Transfer  | Beginning with Francis B. Swain, several people leased the Keauhou property in its entirety or just the upper tract, primarily for harvesting pulu (downy silk from tree-ferns). Ownership of Keauhou also changed hands several times during this period.    |
| 1866 - 1884 AD | Land Transfer  | Keauhou was successively inherited by members of the Kamehameha lineage upon the deaths of previous heirs until the death of Princess Bernice Pauahi at which time her husband Charles Bishop established B.P. Bishop Estate to administer her land holdings. |
| 1921 AD        | Land Transfer  | May K. & Arthur W. Brown leased Tract A (upper) and Tract B (lower) from Bishop Estate and established Keauhou Ranch. This was the first official stipulation of the two tracts.  |
| 1937 AD        | Land Transfer  | The Lease for Keauhou Ranch (tracts A & B) was transferred to Brown heirs.  |
| 1937 AD        | Land Transfer  | W. H. Shipman, Ltd. purchased a lease for Keauhou Ranch (tracts A & B) from B.P. Bishop Estate, and also bought the cattle and property improvements from the Brown heirs.  |
| 1941 AD        | Built          | Herbert C. Shipman, son of businessman William H. Shipman, built the 'Ainahou Ranch House.  |
| 1941 - 1964 AD | Ranched/Grazed | 'Ainahou Ranch was used to raise cattle and supply beef to the military during World War II. Beef was also sold to Hilo, Hawai'i outlets for twenty years after World War II.   |

|                |               |  |
|----------------|---------------|--|
| 1941 - 1959 AD | Built         | Shipman built glass hot houses to propagate orchids and other exotic plants. Shipman also built sheds and a water catchment system (1941-1950s) on the 'Ainahou Ranch House grounds.   |
| 1941 - 1971 AD | Established   | Shipman established gardens, retaining walls and planter beds at the 'Ainahou Ranch House. He collected several exotic plants, many from abroad, and planted them in the surrounding landscape with other ornamental, fruit, and native plant species.       |
| 1942 AD        | Built         | Shipman had an official rain gauge installed west of the ranch house. Rainfall data was reported to the State of Hawai'i and NOAA records until Shipman's death in 1976. The NPS continues to use the site as an official weather monitoring location.       |
| 1946 AD        | Built         | The generator shed was built east of the ranch house to provide it with electricity.   |
| 1946 AD        | Moved         | Shipman moved a surviving flock of Nene from his coastal residence in Kea'au to 'Ainahou Ranch after a tsunami hit the Island of Hawai'i on April 1, 1946, devastating the local nene population.  |
| 1953 AD        | Land Transfer | W. H. Shipman, Ltd. subleased Keauhou Ranch (tracts A & B) to J. J. and Maria Nobriga for cattle ranching. The ranch house was still used by Shipman for the duration of this sublease.  |
| 1954 AD        | Built         | Depreciation records indicate that Nene pens were constructed.   |
| 1961 AD        | Land Transfer | Herbert Shipman renewed his lease for Tract B only, which he names 'Ainahou Ranch. This was the first time the lower Keauhou tract was leased independently. Shipman's water system and other improvements increased the attractiveness of this drier tract. |

|                |                |   |
|----------------|----------------|---|
| 1971 AD        | Purchased/Sold | Shipman purchased the rights to the 'Ainahou Ranch improvements from B.P. Bishop Estate and sold his leasehold interest in the property for \$10 and the improvements and water rights on the property for \$150,000 to the NPS.                                |
| 1971 AD        | Purchased/Sold | B.P. Bishop Estate sold its fee interest in the 'Ainahou Ranch (Tract B) to the NPS for \$648,000. Using Endangered Species Act legislation, Congress appropriated funds designating the use of certain portions for the protection of endangered species.      |
| 1971 - 1973 AD | Removed        | Shipman returned several times to remove his most prized plants from the ranch house grounds before completely relinquishing the property.  |
| 1972 AD        | Built          | The NPS constructed large Nene pens southeast of the 'Ainahou Ranch House and Gardens component landscape.  |
| 1973 AD        | Established    | NPS staff established a working nursery, in the same location where Shipman had his nursery, for the purpose of propagating native plants for re-vegetation projects.   |
| 1973 - 2003 AD | Removed        | NPS staff and volunteers periodically removed invasive plant species such as Russian olive, Formosan koa, kudzu, ash, loquat, ivy and holly. Eradication work transpired in the component landscape, but mostly as part of a regional or parkwide effort.       |
| 1975 - 1979 AD | Maintained     | The NPS removed vegetation overhanging the ranch house and water tanks. Gutters on the ranch house and water tanks were cleaned and painted. The NPS repaired roof and gutters where needed. The ranch house roof was also painted (late 1970s).                |
| 1976 - 1989 AD | Removed        | The large redwood water tanks within the ranch house and NNW of the ranch house were removed by the NPS. The NPS also removed the sink, bath, toilet, light fixtures, generator house, dog kennel, nursery water tank, and some pipelines (late 1970s - 1980s). |

|                |                  |   |
|----------------|------------------|---|
| 1976 - 1978 AD | Rehabilitated    | The NPS reclaimed the yard surrounding the ranch house from heavy weed overgrowth, and pruned and fertilized historic-period plants.  |
| 1980 - 1982 AD | Removed          | Shipman's original nursery hothouses and nursery work sheds were removed by the NPS.  |
| 1984 - 1986 AD | Farmed/Harvested | NPS sold Formosan koa trees planted by Shipman. Trees were harvested from the property between 1984 and 1986.   |
| 1989 - 1990 AD | Removed          | Volunteers (a troubled youth group) assisted the NPS in cleaning up debris, fire fuels, and invasive vegetation around the ranch house. The latter may have included certain historically contributing species, such as holly, azalea, and Russia olive.    |
| 1990 - 1999 AD | Altered          | The NPS installed non-historical plumbing fixtures and a water pump at the ranch house (1990s). Since the historic water system was not fully functional at this time, the pump was installed as a fire precaution.   |
| 1990 - 1999 AD | Established      | The NPS created a new circulation pattern (truck path) making a loop to better access the nursery area (1990s). The truck path is essentially a short-mowed grass path. Its construction did not require grading or permanent alterations to the landscape. |
| 1993 AD        | Rehabilitated    | The NPS replaced V-shaped copper gutters on the ranch house with aluminum-zinc gutters.   |
| 1993 AD        | Preserved        | The NPS replaced the roof on the redwood water tank southwest of nursery area.  |
| 1994 AD        | Preserved        | The 'Ainahou Ranch House was placed on the Hawai'i State Register of Historic Places.   |
| 1995 AD        | Preserved        | The 'Ainahou Ranch House was placed on National Register of Historic Places.  |

|                |               |  |
|----------------|---------------|--|
| 1996 AD        | Rehabilitated | The NPS began clearing invasive vegetation such as Russian olives from the ranch house grounds. In contrast to most of the previous invasive species control, stabilizing the historic resource (cultural landscape) was the focus of these efforts.           |
| 1996 AD        | Altered       | A small garden west of the ranch house was unofficially dedicated (by friends and co-workers) to an NPS employee who died in a tragic accident. The garden consists mostly of native species that volunteered in situ and were deliberately not removed.       |
| 1997 AD        | Damaged       | A large cork oak tree fell on the east side of ranch house damaging the roof and gutters. The NPS quickly rehabilitated the damaged portions of the house.   |
| 1997 AD        | Preserved     | The NPS replaced roof and gutters on the lua (pit toilet).   |
| 1997 AD        | Preserved     | The NPS replaced the roof on shed # 1.   |
| 1997 AD        | Preserved     | The NPS replaced roof, gutters, and east siding on shed # 2.   |
| 1998 AD        | Established   | The Friends of 'Ainahou volunteer organization was formally established to work with the NPS to assist in restoring the ranch house and grounds.   |
| 2001 AD        | Altered       | The Friends of 'Ainahou painted the ranch house exterior window frames without consulting NPS Cultural Resource managers.  |
| 2002 AD        | Built         | The Friends of 'Ainahou built a grape trellis in the nursery area, in the same general location as a decrepit one that was removed. The new trellis is not an accurate reconstruction of the historical one, nor were the appropriate NPS officials consulted. |
| 2002 - 2004 AD | Preserved     | The NPS replaced old 'ohi'a posts at the two main rain sheds north of the component landscape boundary.  |

|         |               |  |
|---------|---------------|--|
| 2004 AD | Rehabilitated | The NPS replaced external support posts on the south side of the ranch house.                                |
| 2004 AD | Rehabilitated | The NPS constructed a new water tank to rest on the historical water tank foundation NNW of the ranch house. |

## Statement Of Significance

### Summary

The 'Ainahou Ranch House and Gardens is locally significant within the State of Hawai'i for its association with Herbert C. Shipman, a locally renowned horticulturalist, businessman, cattle rancher, wildlife conservationist, philanthropist, and descendant of one of the oldest missionary families in Hawai'i (Criteria B) for the period from 1941 to 1971. The house and gardens are also locally significant for this period as an exceptional representation of the Craftsman Style in the islands, which is surrounded by a unique landscape that showcased Shipman's vast horticultural collection (Criteria C). The site contains buildings, structures, circulation features, planted vegetation, and other features dating from the 1941 to 1971 period of significance, which created an extremely private and exotic retreat for one of Hawai'i's most illustrious European figures. The 'Ainahou Ranch and Gardens falls under the National Park Service's "Expressing Cultural Values" and "Transforming the Environment" thematic framework categories.

### Existing Documentation

While the 'Ainahou Ranch House and Gardens falls within the Puna Ka'u Historic District as determined in the 1974 National Register nomination (NR # 74000294), it is not mentioned as a contributing feature. However, 'Ainahou was listed as a building on the National Register of Historic Places on February 8, 1995 with the title of "Ainahou Ranch" (NR # 94001619). This nomination determined the building to be significant (no level identified) under Criteria B and C for the period of 1941 to 1944. However, little mention is made in this nomination of the unique landscape that surrounds the house, nor is there detail regarding the full extent of Shipman's garden developments that continued until 1971. This statement will serve to update the existing National Register documentation by providing additional information needed to fully understand the site as being significant under both Criteria B and C for an expanded period of significance of 1941 to 1971 – the full period during which Herbert C. Shipman constructed his house and developed the surrounding gardens. In addition, the 'Ainahou Ranch House is also listed on the State Register of Historic Places for Hawai'i (April 16, 1994).

### Criterion B

Under Criterion B, the site is locally significant for its association with Herbert C. Shipman, a locally renowned businessman, cattle rancher, wildlife conservationist, philanthropist, and descendant of one of the oldest missionary families in Hawai'i. Shipman used the site primarily as a private mountain retreat and as the site of his Nene (endangered Hawaiian goose, and State bird) breeding and conservation program, begun in 1946. Shipman's efforts were essential for saving the species, whose population was estimated at thirty in 1951, from extinction (<http://pacificislands.fws.gov>). Further, Shipman received national acclaim and foreign recognition for his horticultural accomplishments and was a lifetime member of the American Orchid Society, the Royal Horticultural Society of London, the Hawai'i Orchid Society, the Pacific Tropical Orchid Society, the Hawaiian Botanical Gardens Association, and the Friends of Foster Gardens (Cahill, 1996). He was also the "recipient of many awards for contributing to horticulture and conservation" (Cahill, 1996: 224), including twelve gold medals from the American Orchid Society, and the title of "Conservationist of the Century" by the Waiakea Soil and Water Conservation District.

### Criterion C

The 'Ainahou Ranch House is locally significant under Criterion C as a fine example of the Craftsman Style in its own right, that when paired with the surrounding gardens, creates a unique architectural and horticultural showcase without comparison in Hawai'i.

The ranch house itself is a two-storey wooden bungalow with redwood siding, cut-lava stone foundations and a low gabled roof sheathed in corrugated metal. It incorporates signature components of the Craftsman Style such as the incorporation of Adirondack and Japanese elements such as unfinished log pillars on the exterior and a horizontal roofline supported by protruding rafters (Suzuki/Morgan, 2003). Additional specialized features such as the lanai, built-in garage, and unique rainwater catchment system mark this home as an exceptional building within Craftsman Style.

The gardens surrounding the house total over thirteen acres of native Hawaiian species and exotic horticultural specimens from around the world. In these gardens, Shipman raised orchids and landscaped the grounds with flowering beds and a wide array of fruit, nut, and ornamental trees and shrubs. Shipman's efforts were intended to develop not a botanic garden in a traditional sense, with specific areas dedicated to species, ecosystems, or parts of the globe, but an aesthetic horticultural showcase to display his collections and beautify the grounds of his unique home. The gardens were informally arranged to make use of the sloping terrain, creating views to the shoreline. He further used smaller topographic lava features as planters or as backdrops for orchids and other species. The palette consisted of a multitude of exotic species laid out in an informal, non-linear pattern, which in several areas incorporated or even accentuated the existing natural patterns of native trees and rock outcrops.

#### Integrity

Herbert C. Shipman originally constructed the 'Ainahou Ranch House and Gardens as a secluded retreat in the event of war, but soon expanded his efforts to include developing the grounds as a horticultural showcase and Nene sanctuary. The truly secluded house site on the south slope of the Kilauea Caldera remains in its original location. While the views Shipman established through the forest from his home to the shore have been compromised by the encroaching forest, the Craftsman Style ranch house remains with its Adirondack and Japanese-influenced features intact. Further, the extensive horticultural gardens (though diminished in diversity) also remain in their original overall configurations.

The setting for the 'Ainahou Ranch House and Gardens remains the same, surrounded by the mesic forest on the slopes of Kilauea Caldera. Although the gardens have lost some of their original plant stock, a majority of the species remains in the gardens clearly indicating the general plant palette that Shipman was working with, retaining the aspect of materials. In addition, the aspect of workmanship is also retained in the details of the house and gardens, such as the roughly hewn pillars, notched rafters, and meticulously cut lava rock paving.

The collective retention of the 'Ainahou Ranch and Gardens' location, design, setting, materials, and workmanship creates the aesthetic and historic sense of a past time and place – that of Shipman's occupation, retaining the aspect of feeling and establishes a direct association with the man who developed the site. The integrity of the gardens as defined by the National Register of Historic Places: location, design, setting, materials, workmanship, feeling, and association, still remains and contributes to the significance of this National Register of Historic Places property.



## Physical History

### Early History of 'Ainahou Ranch

'Ainahou Ranch is located within the 'ili'aina (land division within an ahupua'a) of Keauhou, Ka'u (an ancient land division centered on Kilauea caldera) (Jackson and Durst, 2001). A small settlement is known to have existed along the shoreline below the ranch located in the area now called Keauhou Landing. It is believed that the lava fields located between Kilauea crater and the beach did not support much agriculture. Notably, the lack of land claims and the sparse historic records for the area seem to further support the belief that only limited use and occupation of the area by native Hawaiians occurred in the ranch area prior to Western contact (Jackson, 1972).

Shortly after King Kamehameha III established a private land tenure system in the Hawaiian Islands, the entire ahupua'a of Keauhou was awarded to Victoria Kamamalu, a granddaughter of Kamehameha I. Between 1866 and 1884, the ownership of Keauhou was successively inherited by members of the Kamehameha lineage upon the deaths of previous heirs until the death of Princess Bernice Pauahi, at which time her husband Charles Bishop established B.P. Bishop Estate to administer Keauhou and other land holdings in Princess Pauahi's inheritance (Jackson and Durst, 2001).

Upland locations within the 'ili 'aina of Keauhou were used during early Western contact as a gathering place for pulu (silky down on the base of hapu'u tree-ferns used for mattress stuffing and pillows) and wild goat and cattle skins. A number of game (e.g. feral goats) and domestic animals including goats, sheep, mules, asses, cattle, horses, dogs, and pigs were present in the area as early as 1840 (Jackson, 1972). The earliest leases of the 'ili 'aina of Keauhou (beginning in 1860) were predominantly for harvesting pulu, and although the lower elevation lands (later called 'Ainahou Ranch) were included in these leases, the higher elevation portions were the main attraction. The drier climate of the lower portions of Keauhou did not support a dense concentration of hapu'u tree-ferns, nor was it as ideal for ranching as the upper portions.

The historic Keauhou Trail provided the pulu harvesting industry, residents, and tourists with access from the shore at Keauhou Landing to upper elevation areas including the early Volcano House. A portion of the Keauhou Trail later came to be used as the primary access to the 'Ainahou Ranch from Chain of Craters Road (still in use today).

In 1921, B.P. Bishop Estate leased the upper and lower portions of the Keauhou Ranch to May K. and Arthur W. Brown for ranching purposes. Provisions of the lease that specifically applied to Tract B required the Brown lessees to plant kiawe (*Prosopis pallida*) (Jackson, 1972). In August 1937, the lease was transferred to the Brown heirs (Jackson, 1972).

In November 1937, William H. Shipman, Ltd. purchased the Brown heirs' Keauhou Ranch lease as well as all animals, structures, and land improvements on the property. The lower portion of the property known as Tract B was comprised of approximately 8250 acres, which included the area that would later be named 'Ainahou Ranch. As part of the lease, the lessee was required to build a stock proof fence to keep goats out, plant at least \$600 worth of ekoa (*Leucaena glauca*) and grass seed, and erect a windmill and tank to provide drinking water for stock (Jackson, 1972).

### Shipman Years (1941-1971)

In 1941, Herbert C. Shipman, son of W. H. Shipman and manager of W. H. Shipman, Ltd., built the 'Ainahou Ranch House that exists on the site today (see photos, Physical History #s 1,2,3,4, and 5). His original intent in constructing the house was to establish a remote, mountain retreat for his family in the event of a military invasion of Hawai'i by Japan (Cahill, 1996). The main residential complex, including ranch house and the surrounding grounds were used by Shipman as a residential retreat amid the larger 6324 acre cattle ranching property. During World War II, 'Ainahou Ranch supplied beef to the military. After World War II, the ranch supplied meat to Hilo outlets for approximately 20 years (Jackson and Durst, 2001).

Shipman constructed an extensive water catchment and delivery system that featured rain sheds, large holding tanks, and a water transport pipe system that serviced residential, landscaping, and animal stock needs without the use of a water pump. Depreciation records for 'Ainahou tanks from 1941-1969 documents maintenance on tanks, sheds and pipes (Jackson, 1972).

The outlying buildings and the water system were probably built on the ranch house grounds after the ranch house was built in 1941, although the dates are unknown. The exact year of when some of these outlying buildings were constructed is unknown. These structures include the lua (pit toilet), rain sheds and several water tanks, glass hot houses (no longer present) (see photo, Physical History # 6), sheds for nursery supplies and equipment, and a generator shed. The mortared stone walls in front of the ranch house were built in 1941 after the construction of the ranch house was completed. The generator shed was built in 1946 and supplied the ranch house with electricity. The lua was built sometime before 1950 (Jackson, 1972) for ranch hands and other workers and is located northwest of the ranch house.

Within the boundaries of the 13.38 acre component landscape, Shipman raised orchids and extensively landscaped the grounds with flowering beds, ornamentals, citrus orchard, a cork oak grove and several types of pine trees. Shipman received national acclaim and foreign recognition for his horticultural accomplishments and was a lifetime member of the American Orchid Society, the Royal Horticultural Society of London, The Hawai'i Orchid Society, the Pacific Tropical Orchid Society, the Hawaiian Botanical Gardens Association, and the Friends of Foster Gardens (Cahill, 1996).

In 1946 Herbert C. Shipman established a Nene (Hawaiian goose) breeding grounds and conservation area on the site after the 1946 tsunami killed more than half of his flock of Nene at his Kea'au property (Apple, 1991). The breeding program involved the construction of enclosed pens at 'Ainahou Ranch (see photo, Physical History # 7) which are thought to have been located between the ranch house and the nursery area (Thorn, 2003). Shipman donated Nene stock to various breeding and conservation programs locally and internationally. Shipman's early Nene conservation and breeding activities that occurred at the ranch have been credited with saving the Nene from extinction (Cahill, 1996).

Shipman used the ranch house and component landscape to entertain a number of friends and guests included a number of celebrities. An 'Ainahou Ranch guest book contains the names of several hundred people who visited the ranch house complex between the years 1945 to 1965. Some of the most prominent people to have visited the ranch include: Joan Crawford, Janet Gaynor, Sir Peter Buck, Kenneth Emory and Marion Kelly. It is believed that such guests were generally daytime visitors who lodged at the nearby Volcano House hotel (Cahill, 1996).

In 1961, Shipman renewed his lease for the lower portion of the Keauhou area (Tract B) for another twenty-year term. Prompted by lava flows from Mauna Ulu which threatened to inundate the 'Ainahou Ranch House, Shipman sold his property improvements and terminated his lease in 1971.



*Physical History # 1: Historical photo of the construction of the 'Ainahou Ranch House (courtesy of Samuel M. Lowrey, 1941).*



*Physical History # 2: Historical photo of the front view of the 'Ainahou Ranch House (courtesy of Shipman LTD, 1949).*



*Physical History # 3: Historical photo of the 'Ainahou Ranch House with the kitchen to the right and the garage to the left (courtesy of Shipman LTD, 1949).*



*Physical History # 4: Historical photo of the 'Ainahou Ranch House and Gardens (courtesy of Shipman LTD, date unknown).*

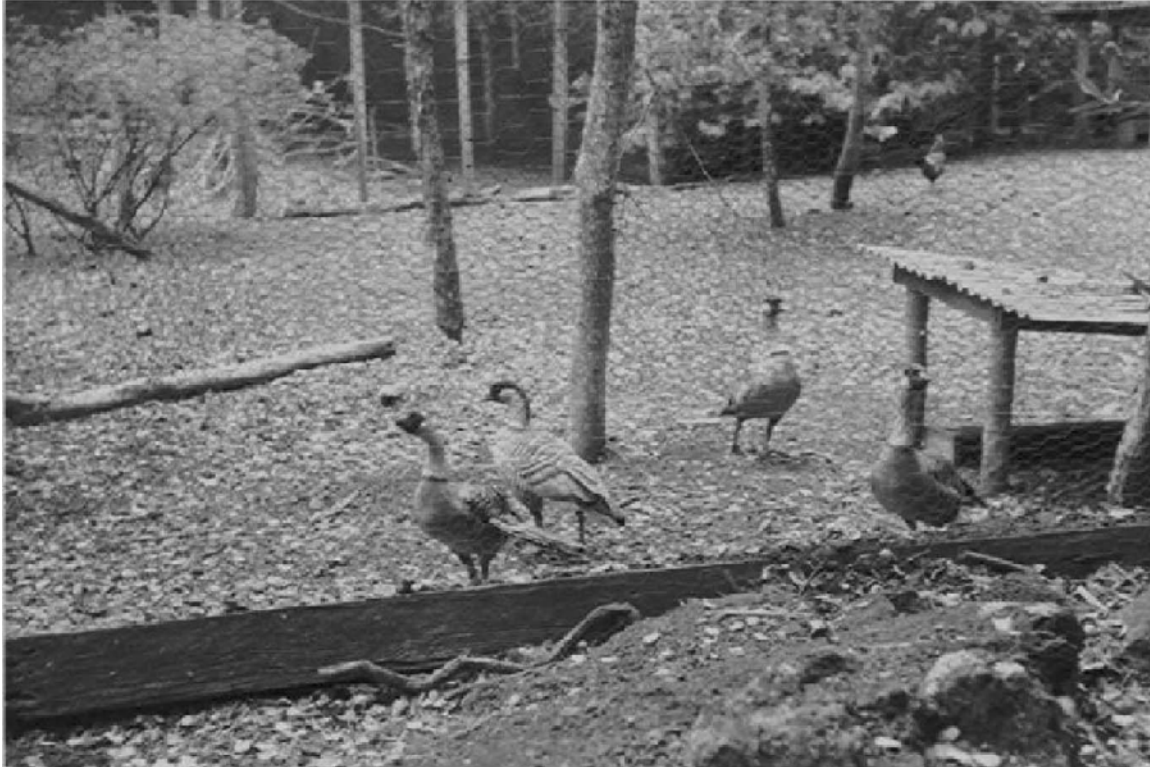


*Physical History # 5: Historical photo of the patio on the southwest side of the ranch house (courtesy of Shipman LTD, date unknown).*



*Physical History # 6: Historical photo of the 'Ainahou Ranch nursery (courtesy of Shipman LTD, date unknown).*





*Physical History # 7: Historical photo of penned Nene at the 'Ainahou Ranch House grounds (courtesy of Shipman LTD, date unknown).*

## National Park Service (1972-Present)

In 1971, under the threat of an impending lava flow, Shipman sold his leasing interest in the 'Ainahou ranch property to the National Park Service (Suzuki/Morgan Architects, LTD., 2003). The NPS subsequently purchased the entire 6324 acre property from Bishop Estate in 1972 for \$648,000 under the authority of the Endangered Species Act. This act mandated that a portion of the land be set aside for activities related to preserving endangered species. In 1972, NPS Nene enclosures were constructed at the ranch property's lower boundary and are still used as a Nene nesting ground.

For several years after the NPS became the owner of 'Ainahou Ranch, little use was made of the property surrounding the ranch house other than Nene conservation efforts and grazing by NPS horses. The park hired a caretaker to live at the ranch house from 1973-1975. During this time, Shipman returned to claim several of his prized plants from the site and transported them to his Kea'au property (Thorne, 2003). In 1973, the NPS established a nursery area to propagate native plants for re-vegetation projects at the park (Zimmer, personal comm., 2003). The main ranch house dwelling was rented to overnight guests quite frequently during the late 1970s, despite the fact that the site no longer had electricity or potable water.

In the 1980s, the NPS removed water tanks in the storage room and behind the ranch house as well as plumbing and lighting fixtures in the interior of the main residence. The plumbing fixtures were replaced in the 1990s by the NPS. Between 1980-82, the NPS removed Shipman's original glass hot houses and work sheds from the nursery area. Several years later, the NPS sold Formosan koa trees planted by Shipman as a joint fund-raising / invasive species control initiative. Throughout the Park Service's tenure, natural resource managers have periodically had to remove invasive species from the 'Ainahou Ranch House vicinity. Several of these were in fact trees that Shipman had unsuspectingly planted (see Vegetation section for discussion).

During the 1990s, more changes occurred in the landscape as well as to the ranch house and outlying buildings. In the 1990s, a truck path was created by the NPS behind the greenhouse which loops back to the historic driveway (see Site Plan # 1 in Appendix). The roof and v-shaped copper gutters of the main ranch house dwelling were replaced in 1993. The NPS also replaced the roof on the redwood water tank just southwest of the nursery area. In 1996, stabilization and re-roofing were also completed on two redwood water tanks. Around this time, NPS staff and volunteers also began clearing invasive vegetation such as Russian olive trees around the ranch house grounds as part of a concerted effort to improve the historic resource, in contrast to previous efforts, which were generally part of regional eradication efforts. A small memorial garden west of the ranch house was planted in memory of Russell Bickler, an NPS employee who died in a tragic accident in 1996. This memorial garden was not approved by NPS officials, and no documentation was made of previous conditions. The affected area is approximately thirty feet by forty feet, and predominantly consists of native species that volunteered in situ. Although the garden is located in close proximity to the ranch house, it is rather inconspicuous between a large mulberry tree and a dracaena hedgerow.

Additional rehabilitation work on the ranch house kitchen roof, potting shed, wood water tank and shed was completed in 1997. The lua (comfort station) and shed #2 roof and gutters were replaced and the roof was replaced on shed # 1. The Friends of 'Ainahou (a volunteer organization) was formally established in 1998, and began assisting the NPS in rehabilitating the 'Ainahou Ranch House and surrounding gardens. In 1999, NPS staff installed a weather station and rain gauge to monitor weather conditions at the ranch house. In 2001, the Friends of 'Ainahou painted the ranch house exterior window frames. In 2002, the group built a grape trellis in the nursery area to replace a historical one that was wasting away (this action was done without official NPS approval or documentation). In 2003, the

Friends of 'Ainahou formally changed their name to the Friends of Hawai'i Volcanoes National Park. In 2002 and later in 2004, the NPS rehabilitated the two large rain sheds north of the component landscape. Also in 2004, the NPS replaced support posts on the south side of the ranch house (the patio area), and reconstructed an operational water tank to rest on the historic water tank foundation NNW of the ranch house (within the component landscape).

In the past, the ranch house complex was occasionally used to accommodate educational activities and overnight guests as part of the various environmental education programs conducted within the park. Currently, the Friends of Hawai'i Volcanoes National Park occasionally invite groups such as the Honolulu Garden Club for day trips to the 'Ainahou Ranch House and Gardens (McKinney, personal comm., 2003).

The removal of invasive plant species is an on-going effort by NPS staff and the Friends of Hawai'i Volcanoes National Park. Other current activities at the ranch house include Nene conservation efforts as well as the propagation of common native and rare plant species by NPS staff.

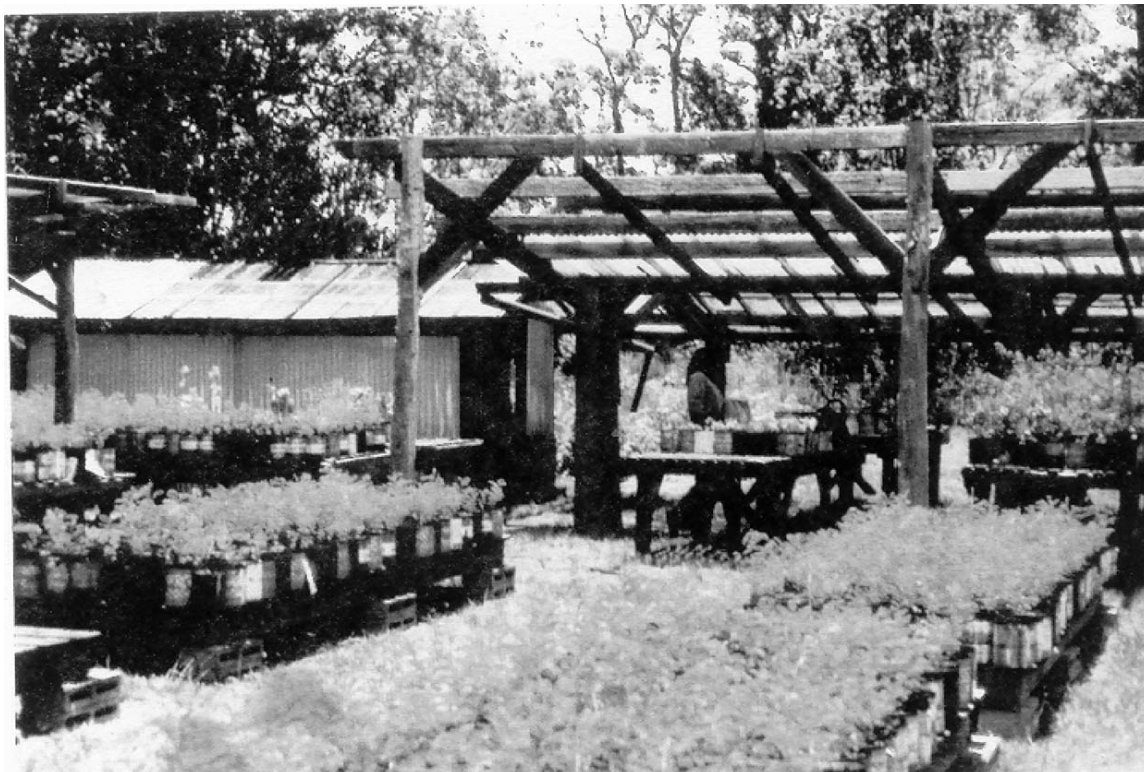


*Physical History # 8: Historical photo of the generator shed located to the east of the ranch house (PWR, HAVO, CLI files, 1970s).*





*Physical History # 9: Historical photo of the glass hothouses in the nursery area. Note the retrieval of rainwater from the roof of the structures (PWR, HAVO, CLI Files circa 1973).*



*Physical History # 10: Photo of the NPS greenhouse located in the nursery area where Shipman originally had his glass hothouses (PWR, HAVO, CLI files, late 1970s).*

## Analysis And Evaluation

### Summary

The gardens of the 'Ainahou Ranch House continue to represent Herbert C. Shipman's creation of an isolated yet elaborate sanctuary in the forest for his family and later for the Nene. His development of the site into an architectural and horticultural showcase from 1941 to 1971 is still evident in the house and gardens which continue to dominate the site today. They continue, through the retention of the majority of landscape characteristics, to evoke the qualities of the remote, yet distinguished activities of one of Hawai'i's most distinguished European citizens. Although the house is no longer used as a residence and the gardens are not as fully developed as they were in 1971, the natural systems and features, topography, buildings and structures, cluster arrangement, spatial organization, vegetation, circulation, and land use continue to contribute to the significance of the site.

### Landscape Characteristics And Features

#### Natural Systems And Features

Natural systems and features are the natural aspects that have influenced the development of a landscape.

#### VOLCANISM

'Ainahou Ranch House is located approximately four miles down slope from the main caldera of the world's most active volcano. The decision to build so close to an active volcano is indicative of Shipman's character, affluence, and the situational imperatives associated with the historic period: namely, Shipman's desire to secure a safe and hidden place for his father and siblings in the event of Japanese invasion. Long-term safety was not a presiding factor in the decision to build at 'Ainahou.

Volcanic hazards probably influenced Shipman's decision to build the 'Ainahou Ranch House on a site of slightly elevated local relief. It appears that he was fortunate in choosing the general vicinity for the house as well. Despite initial appearances, building directly downhill (south) of Kilauea Caldera was actually less imprudent than building obliquely below it. This is on account of Kilauea's east and west rift zones where most of the recent major lava flows originate. The sliver of land on which 'Ainahou Ranch House is built is categorized as being 750 -1,500 years old on the current U.S.G.S. geologic map, whereas areas less than one mile to the east and west are less than 750 years old. Nearly the entire one-mile road segment joining the house area to Chain of Craters Road traverses land that is categorized as 200 – 750 years old (U.S.G.S. Wolfe and Morris, 1996). Although detailed, accurate geologic maps were probably not available in the 1940s, vegetation patterns can be recognizably different on adjacent flows that are 200 versus 1000 years old. Building the house on the edge of an old-growth 'ohi'a forest was probably intentional, but it is not known whether Shipman perceived the house site to be relatively safer from volcanic inundation on the basis of substrate age. It is believed that Shipman, the avid conservationist, chose the house site at the edge of the forest primarily to minimize aesthetic disruption to the natural surroundings (Thomas English, personal comm., 2004).

During the 1960s and early 1970s, the formation of Mauna Ulu and associated eruptions produced lava flows that threatened to inundate 'Ainahou Ranch House, which lay a mere two miles away and obliquely down slope. Mauna Ulu is a lava shield that actually formed well into the period of significance and therefore could not have directly influenced the location of the house and surrounding gardens. It is however associated with Kilauea's East Rift Zone. The Mauna Ulu eruptions became a strong incentive for Shipman to terminate his lease. In years prior, he had not allowed the NPS to buy out his lease. With

Mauna Ulu's lava flows encroaching, Shipman eventually reconsidered.

High levels of atmospheric sulfur dioxide and acid rain accompany Kilauea eruptions. It is likely that Shipman considered the high acidity of local soils when he selected plants for landscaping. For example, Shipman planted six or more species of pine trees in the component landscape, all of which still thrive today. Other contributing plants that are widely recognized for their tolerance of high acidity include: camellias, roses, lilies, date palms, and citrus trees. Whether Shipman planned the gardens surrounding the ranch house with soil acidity in mind or proceeded through trial and error, high acidity is a natural feature that has definitely influenced the development of the landscape.

Sulfur dioxide and acid rain have also increased the deterioration (corrosion) rate of metal structures and fences. These conditions may have been extreme during Mauna Ulu's eruptions, since it is upwind and very close. Furthermore, inordinate amounts of cinder and airborne particles from Mauna Ulu's eruptions are reported to have landed on the rain shed roofs and been deposited in the bottoms of the water tanks. This presumably increased maintenance demands for Shipman, although for the main reservoir tanks, cleaning was not a practical option due to structural design. Today, it is speculated that the insides of these two 50,000 gallon tanks may be filled with sediment up to a quarter or a third of their holding capacities. Buildings and structures may have been painted and/or replaced more frequently to abate the effects of acid rain, but nothing could be done to improvise at the landscape level. However, the acid rain has implications for the historic documentation of the landscape, particularly in the case of wire fence remnants, which deteriorate very rapidly under these natural conditions.

One of the longest cave systems in Hawai'i passes directly beneath 'Ainahou Ranch (although not beneath the component landscape). The cave is a remnant subterranean lava flow chamber which emptied itself after lava stopped flowing through it. "Lava tubes" of various sizes are a common occurrence in the region, and may have played a minor role in determining Shipman's house site (away from such features). Although caves do not show any tangible signs of influence on the cultural landscape, their hidden presence would have been a cause for vigilance when it was being developed.

#### CLIMATE

The climate at 'Ainahou Ranch House is markedly drier than that of the caldera vicinity, despite being only a few miles away and less than one-thousand feet lower in elevation. Despite being located on the windward side of the Big Island, 'Ainahou Ranch is significantly drier than other eastern Hawai'i locations of similar elevations due to its unique position in the transition zone between the windward and leeward sides of Kilauea Mountain.

Using NPS records for the rain gauge at 'Ainahou, a twenty year period (1981-2000) with continuous data was analyzed for trends. The average annual rainfall for this period was 80.2 inches. The July average was 5.5 inches and the December average was 11.1 inches. Several years revealed summertime dry spells where May, June, July, and August each had one inch or less. The 20-year modal value for July was 3.5 inches.

Although these rainfall values may seem plentiful, other environmental factors should be considered, particularly when comparing with the continental United States. Firstly, the porous substrate and thin or absent soil layers allow for quick percolation of rain water. Secondly, evapotranspiration rates are high. Thirdly, the soil deposits that are present are young and poorly developed, lacking the depth and particle stratification (e.g. clay layers) necessary for long term water retention.

The climate at 'Ainahou has significantly influenced the development of the cultural landscape. Hawaiians that lived in the area in pre-historic times depended heavily on caves for drip water collection.

Unlike them, Shipman had herds of cattle to care for as well. The development of rain sheds and an intricate water system that connected about twenty water tanks was very much influenced by local climatic conditions. The dry climate also influenced Shipman's selection of landscape plants and pasture grasses.

#### VEGETATION

Before the arrival of grazing ruminants, the 'Ainahou Ranch area was a virtually intact, native mesic forest / scrubland complete with several endemic understory species that are rare or extinct today. Although the cumulative effects of grazing on native Hawaiian ecosystems was poorly understood in the 1940s, the wilderness setting clearly influenced Shipman's development of the component landscape. Shipman, a respected conservationist of his time, was inclined to develop the landscape with conservation of natural vegetation in mind. Evidence of this can be seen in the integration of 'ohi'a and other native trees and shrubs into the gardens surrounding the ranch house. 'Ohi'a trees also influenced the course of fence lines in the component landscape and were incorporated in a manner that avoided or mitigated damage to the trees. Natural systems and features therefore contribute to the significance of the 'Ainahou Ranch House and Gardens.

## Topography

Topography is the three dimensional configuration of the landscape surface as influenced by land use, circulation, etc.

### WATER-SYSTEM

Topography plays a subtle yet important role in the 'Ainahou Ranch House and Gardens as the historic water system at 'Ainahou was gravity-fed. Therefore, there is a high-to-low topographic organization beginning with the main rain sheds, and extending down to the residential area, the nursery area, and finally the livestock water tanks (see Water System Maps in Appendix).

All tanks were interconnected by an intricate system of pipes and valves to allow maximum user discretion as to which water source to expend. These management decisions would have been heavily dependent on the relative elevations of the tanks, conserving water in the higher tanks since it could be easily delegated to other tanks and outlets below (but not vice versa). For example, the lower livestock tanks could be fed from the upper livestock tanks until emptied, at which point the nursery overflow could be enacted. If the nursery tank went dry, it could be filled from the tanks under the house, and so on. The rain shed water tanks (upslope from the component landscape) were strategically located at the highest elevation thereby having sufficient water head (height of water level above delivery point) to service any outlet or refill any other tank on the ranch. The ranch house, greenhouse, one of the sheds, and the tack house, all doubled as auxiliary rain sheds, refilling the nearest tank in the chain. Topography clearly influenced the landscape design, enabling a gravity-powered water delivery system for the people, plants, and animals at 'Ainahou Ranch (see photo, Topography # 1).

Portions of the historic water system occur within the component landscape, but several elements have been removed or altered by the NPS. The irrigation lines for the nursery area have been connected (by the NPS) directly to the line that flows from the rain shed water tanks. During the period of significance there was the option of servicing the plant nursery from the water tanks (removed) in the residential cluster, since they were elevated ten to fifteen feet higher (thereby conserving water in the more elevated rain shed tanks). The same was true for faucets in garden locations that have been removed following the period of significance (see Water System maps in Appendix). The tanks in the nursery area pressurized lines leading to cattle troughs within or near the component landscape that were not serviceable by the huge livestock water tank below the component landscape (tank # 17 on water system maps). The house water lines, particularly the upstairs baths, must have been pressurized by a line connected to the rain shed water tanks (tanks # 1 and # 2 on water system maps), which lie about fifty feet higher in elevation (outside of the component landscape). Although the NPS has removed or bypassed several of the deteriorating tanks and installed a pump for fire protection, many of the water tanks still remain in-situ as reminders of the topographic organization of the gravity fed water system at 'Ainahou.

### HOUSE-SITE SELECTION

Topography seems to have influenced Shipman's house-site selection as well. The location of the house on a high spot in the terrain allowed for extensive views to the ocean and may have also been selected on the basis of ameliorating the risk of house damage in the event of a local lava flow. At the parent landscape level, the house is situated near the top of the rectangular ranch property of which the long sides stretch down slope toward the sea. This topographic orientation allowed Shipman and his guests to gaze over the pastures to the sea and the coastline in the distance.

### HOUSE AND ROAD CONSTRUCTION

Mortared lava rock walls and piers were used for the foundations of the central and eastern sections of the ranch house and the large redwood water tanks within (removed by NPS). The walls and piers were